HOUSE OF COMMONS SESSION 1999–2000

SCIENCE AND TECHNOLOGY COMMITTEE

Seventh Report

THE GOVERNMENT'S EXPENDITURE ON RESEARCH AND DEVELOPMENT: THE FORWARD LOOK—THE GOVERNMENT'S REPLY

Report and Proceedings of the Committee

Ordered by The House of Commons *to be printed*
27 July 2000

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The Science and Technology Committee is appointed to examine on behalf of the House of Commons the expenditure, administration and policy of the Office of Science and Technology (and any associated public bodies). Its constitution and powers are set out in House of Commons Standing Order No. 152.

The Committee has a maximum of eleven members, of whom the quorum for any formal proceedings is three. The members of the Committee are appointed by the House and unless discharged remain on the Committee until the next dissolution of Parliament. The present membership of the Committee is as follows:[1]

Dr Michael Clark MP (*Conservative, Rayleigh*)[2]
Sir Paddy Ashdown MP (*Lib Dem, Yeovil*)[6]
Mrs Claire Curtis-Thomas MP (*Labour, Crosby*)[2]
Dr Ian Gibson MP (*Labour, Norwich North*)[2]
Dr Brian Iddon MP (*Labour, Bolton South East)*[5]
Mr Robert Jackson MP (*Conservative, Wantage*)[3]
Dr Lynne Jones MP (*Labour, Birmingham Selly Oak*)[2]
Dr Ashok Kumar MP (*Labour, Middlesborough South and East Cleveland*)[2]
Mr Ian Taylor MP (*Conservative, Esher and Walton*)[4]
Dr Desmond Turner MP (*Labour, Brighton Kemptown*)[2]
Dr Alan W Williams MP (*Labour, Carmarthen East and Dinefwr*)[2]

On 30 July 1997, the Committee elected Dr Michael Clark as its Chairman.

The Committee has the power to require the submission of written evidence and documents, to examine witnesses, and to make Reports to the House.

The Committee may meet at any time (except when Parliament is prorogued or dissolved) and at any place within the United Kingdom. The Committee may meet concurrently with other committees or sub-committees established under Standing Order No. 152 for the purposes of deliberating, taking evidence or considering draft reports. The Committee may meet concurrently with the House's European Scrutiny Committee (or any of its sub-committees) or the Environmental Audit Committee for the purposes of deliberating or taking evidence. The Committee may exchange documents and evidence with any of these committees, as well as with the House's Public Accounts and Deregulation Committees.

The Reports and evidence of the Committee are published by The Stationery Office by Order of the House. All publications of the Committee (including press notices) are on the Internet at www.parliament.uk/commons/selcom/s&thome.htm. A list of Reports of the Committee in the present Parliament is at the end of this volume.

All correspondence should be addressed to The Clerk of the Science and Technology Committee, Committee Office, 7 Millbank, London SW1P 3JA. The telephone number for general inquiries is: 020 7219 2794; the Committee's e-mail address is: scitechcom@parliament.uk.

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[1] Mrs Caroline Spelman MP (*Conservative, Meriden*) was appointed on 14 July 1997 and discharged on 22 June 1998.
Mr David Atkinson MP (*Conservative, Bournemouth*) was appointed on 14 July 1997 and discharged on 30 November 1998.
Mrs Jacqui Lait MP (*Conservative, Beckenham*) was appointed on 22 June 1998 and discharged on 5 July 1999.
Mr Nigel Beard MP (*Labour, Bexleyheath and Crayford*) was appointed on 14 July 1997 and discharged on 20 March 2000.
Mr Nigel Jones(*Liberal Democrat, Cheltenham*) was appointed on 14 July 1997 and discharged on 15 May 2000.

[2] Appointed on 14 July 1997.

[3] Appointed on 5 July 1999.

[4] Appointed on 30 November 1998.

[5] Appointed on 20 March 2000.

[6] Appointed on 15 May 2000.

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SUMMARY OF RECOMMENDATIONS AND CONCLUSIONS

(a) We urge the Government to look again at the recommendations and conclusions contained in our Report and to examine and respond to the arguments that we put forward to support them (paragraph 9).

(b) We strongly urge the Government to reverse its decision to publish *Forward Look* only once every three years and to re-instate annual publication (paragraph 10).

SEVENTH REPORT

The Science and Technology Committee has agreed to the following Report:—

THE GOVERNMENT'S EXPENDITURE ON RESEARCH AND DEVELOPMENT: THE FORWARD LOOK—THE GOVERNMENT'S REPLY

1. We published our Fifth Report of Session 1999-2000, on *The Government's Expenditure on Research and Development: The Forward Look* on 19th April 2000. The Government's Reply was received on 4th July 2000 in the form of a memorandum.

2. The Government's Reply sets out each of our recommendations and conclusions, together with any response it has made. It is appended to this Report.

3. In our original Report we made a series of recommendations designed, *inter alia,* to:

- improve the quality of policy-making;
- increase the cost-effectiveness of Government Departments' expenditure on research and development;
- enhance the level of co-ordination between Government Departments on issues relating to research and development;
- increase the complementarity between the execution of research and development activities on the part of Government Departments and those funded from the Science Budget; and
- maintain and improve transparency and accountability in science, engineering and technology areas.

4. There are some issues upon which the Government wholeheartedly agrees with us but these are largely restricted to those of our conclusions which are statements of general principle rather than specific recommendations. The Government, while thanking us for our Report, has not in general been persuaded that the measures we proposed are either necessary or expedient.

5. We recognise that in some areas that the Government may have been constrained in its Reply by a justifiable desire not to foreshadow either the announcement of the outcome of the second Comprehensive Spending Review (an announcement which was subsequently made on 19th July 2000) or the expected White Paper on Science and Innovation which was published on 26th July 2000. We also recognise that the Government is under no obligation to concur with our conclusions or to accept our recommendations.

6. Nevertheless, we find the Government's Reply to be wholly inadequate. In some instances the Reply does little more than re-state facts to which we had already drawn attention in our Report or re-iterate evidence which the Government submitted to our inquiry in the first place, without any indication of why we should be persuaded to alter our original analysis of that evidence. (For example, in response to our recommendation that "MAFF should at least restore R&D funding to the level prior to the 1998 CSR and, if possible, implement the recommendation of its own working group for an £8 million annual increase in spending".)[1] We note that the CSR settlement announced on 19th July 2000 included an increase in MAFF's overall budget. We realise that the Government could not have told us about this when it replied to our Report, but it should have drawn our attention to it later. Moreover, we cannot assume that this increase will translate into an increase in investment in research and development on the part of MAFF, particularly in light of the that overall research and development was disproportionally reduced by cuts after the 1998 CSR settlement. On a number of issues, having re-examined the evidence and taken into account any relevant, subsequent developments, we chose to re-state a

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[1] See Appendix, p. xiv.

recommendation which we had previously made in an earlier Report. In these cases, the Government has for the most part declined to offer any substantiative response other than that which it provided in its Replies to our original Reports. (For example, in response to our recommendations regarding the quality and levels of competence of graduates in science, engineering and technology subjects.)[2]

7. Recommendation **(d)** of our original Report stated that:

> "Although Ministers do not acknowledge it in so many words, the suspicion persists that the increased Science Budget is being asked to bear the brunt of cuts in departmental allocations. Such a policy of robbing Peter to pay Paul is neither sensible nor sustainable. We strongly recommend that in the forthcoming Comprehensive Spending Review the long-term decline in civil departments' R&D spending—both in absolute terms and as a proportion of total civil R&D—should be halted and reversed.".[3]

8. The Government's response — "the Science Budget has not been augmented through reductions in civil Departments' R&D budgets"—is at best curious and at worst a bizarre misinterpretation of our analysis.[4] Our argument, plainly, was that the welcome increases in the Science Budget could be undermined by reductions in departmental expenditure on research development, not augmented by them. Indeed, we cannot envisage a mechanism by which such augmentation could happen: the overall science budget is determined at the same time as the overall expenditure levels of each Government Department. Only later do Departments determine their precise allocations to research and development.

9. **We urge the Government to look again at the recommendations and conclusions contained in our Report and to examine and respond to the arguments that we put forward to support them.**

Publication of the Forward Look

10. In the opening section of our Report we recommended that "Forward Look should resume its annual publication".[5] In response the Government told us that "the current Spending Review process involves settlements intended to cover a three-year forward period. The Government believes that publication of Forward Look should continue to reflect the phasing of the expenditure cycle. Accordingly, it intends to produce new Forward Looks on a cycle consistent with the timing of future Spending Reviews".[6] While we welcome the longer term-planning that the three-year expenditure cycle enables, we do not accept that reporting on planning and progress on a three-yearly basis is a natural consequence. We remain convinced that *Forward Look* should be published on an annual basis both because it is an effective management tool to ensure progress monitoring against objectives and a means of communicating the Government's plans and progress to a wider audience. Moreover, three-yearly publication would represent a move away from the policy of publishing *Forward Look* and the *Science, Engineering and Technology Statistics* at the same time. Concurrent publication enabled information to be read across from one publication to the other. Thus the inevitable consequence of the Government's proposal must be that there will be a decline in both the topicality and quality of the information provided to the public on the Government's plans for science, engineering and technology. **We strongly urge the Government to reverse its decision to publish *Forward Look* only once every three years and to re-instate annual publication.**

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[2] See Appendix, p. x.

[3] Fifth Report from the Science and Technology Committee, Session 1999-2000 on *The Government's Expenditure on Research and Development: The Forward Look,* HC 196-I, para 32.

[4] See Appendix, p. viii.

[5] HC 196-I, para 1.

[6] Appendix, p. vii.

APPENDIX

The Government's Response to the House of Commons Science and Technology Committee's Fifth Report: "Government Expenditure on Research and Development: The Forward Look", published April 2000

The Government thanks the Committee for this report and has noted the findings. It offers the following responses to the recommendations which have been made.

(a) We recommend that Forward Look should resume its annual publication (paragraph 1).

The main objective of Forward Look is to present the Government's planned expenditure and strategy for SET. Forward Look was published on an annual basis from 1994 to 1996, to reflect the outcomes of the then annual resource allocation process. The current Spending Review process involves settlements intended to cover a three-year forward period. The Government believes that publication of Forward Look should continue to reflect the phasing of the expenditure cycle. Accordingly, it intends to produce new Forward Looks on a cycle consistent with the timing of future Spending Reviews. However, Departments do make some adjustments to their spending plans between Spending Reviews and the intention is to publish any revised year-by-year data in the *Science Engineering & Technology Statistics*.

The Committee noted comments in its report from witnesses that Forward Look did not cover implementation of the CSA's Guidelines[1] nor did it act as a guide to what was happening in the Foresight area. The Government sees no need to repeat detailed information in Forward Look that has already been made publicly available elsewhere and has, instead, included pointers and information links in the document to this material. Implementation of the Guidelines is already assessed on an annual basis and OST publishes a separate report showing progress. In the case of the Foresight programme, many departmental entries to Forward Look do refer to their Foresight activities. The Foresight website provides extensive and up-to-date information on progress and the Government also publishes regular Foresight progress reports.

(b) We recommend that Forward Look should in future seek to match Science, Engineering & Technology and Research and Development expenditure figures more specifically to policy objectives and the achievements of departmental science strategies (paragraph 3).

The 1999 Forward Look and its predecessors contained breakdowns of departmental SET expenditure by policy-related subject area. In addition each department publishes an Expenditure Plans Report describing the achievements over the past year. Departmental science and innovation strategies, which the Government plans to introduce from 2001 following recommendations made in a report by the Council for Science and Technology ("the Nicholson Report")[2], will develop improved measures of SET output performance, linked to policy objectives. The Government agrees that there is scope for further development of good practice in this area.

(c) We repeat now-and with greater force, having considered the evidence submitted for this inquiry-the anxiety expressed in our previous Report about the decline in civil departments' R&D investment (paragraph 31).

(d) Although Ministers do not acknowledge it in so many words, the suspicion persists that the increased Science Budget is being asked to bear the brunt of cuts in departmental

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[1] "*The Use of Scientific Advice in Policy Making*", Office of Science and Technology, March 1997.

[2] "*Review of S&T Activity Across Government—Report by the CST*", July 1999 and the Government's Response, September 1999.

allocations. Such a policy of robbing Peter to pay Paul is neither sensible nor sustainable. We strongly recommend that in the forthcoming Comprehensive Spending Review the long-term decline in civil departments' R&D spending-both in absolute terms and as a proportion of total civil R&D-should be halted and reversed (paragraph 32).

As the Government noted in evidence to this Inquiry, there is no absolute right level of R&D expenditure. Departments must invest in R&D at a level which they judge best meets their policy, regulatory, procurement and service delivery needs. The outcome of departmental allocations for science in the last Comprehensive Spending Review was varied, with some increases and some decreases.

As part of Spending Review 2000, the Government has undertaken a cross cutting review of science and research with the aim of ensuring that science supported by public funds in England is being properly conducted and exploited to the benefit of the economy at large. The outcome of the cross-cutting review has now been fed into Spending Review 2000, which is still in progress.

The Science Budget has not been augmented through reductions in civil Departments' R&D budgets. The Science Budget is used to support basic and strategic research and postgraduate education, whilst departmental R&D funds are used in support of their policies and statutory duties and to provide foresight for policy development. For civil departments, this is very largely applied research.

There have been a few cases where, for sound policy reasons, responsibilities for certain areas of SET activity have been transferred to Research Councils, but these have involved relatively small sums of money, which have invariably been transferred with the responsibility.

Changes in departments' spending can have some impact on the science base. Reductions in MAFF funding possibilities have been a factor in redundancies at Biotechnology and Biological Sciences Research Council institutes and, indeed, have also caused problems for its own Agencies. As the Committee has noted, Research Council laboratories and universities undertake research commissions and contracts for Government Departments, and the income from such work contributes to funding of the institutions indirect costs. If research funding is brought to an end, for whatever reason, this can cause difficulties through the loss of this contribution to indirect costs and, in some cases, from the cost of any consequential redundancies. Contractual relationships between Public Sector Research Establishments and departments will be considered as part of the forthcoming quinquennial reviews.

(e) In the introduction to Forward Look, the Secretary of State for Trade and Industry emphasises the status of science as a "major priority" for the Government on the grounds that "it underpins our quality of life and is a key driver for wealth creation and employment both in this country and overseas. This is a statement we strongly endorse (paragraph 33).

The Government welcomes the Committee's endorsement. The Government is firmly committed to maintaining and building upon the excellence of the UK science base, and ensuring that the UK thrives in the global knowledge-driven economy of the new century.

(f) Competitiveness is a key issue for science policy which merits inclusion amongst the aims of SET expenditure. We therefore recommend that a fourth objective should be added in future editions of Forward Look, namely:

-to generate useful knowledge and inventions, both as a contribution to enhancing the competitiveness of the UK economy and as a stimulus to wealth creation and improved quality of life (paragraph 35).

The Government is pleased to note that the Committee strongly agrees that science and technology should be a major priority for Government on the grounds that it underpins our quality of life and is a key driver for wealth creation. As the Committee points out, this statement is reflected in the preface to the Forward Look which then goes on to set out the three main areas of SET expenditure: maintaining the excellence of the UK science and engineering base, promoting business exploitation and ensuring the effective use of science by government. These areas were intended as a sub-set of the overall objective of encouraging competitiveness, wealth creation and quality of life. Competitiveness should therefore be seen as underlying all three existing objectives, rather than as an activity meriting a separate fourth objective.

(g) We recommend that the Government take steps to remedy these deficiencies in the Foresight programme by developing a strategy to promote greater involvement in the process by SMEs (paragraph 50).

The Government recognises the continuing challenge of involving SMEs in Foresight. Its strategy is to encourage businesses in general to be more forward-looking, to take advantage of new and merging technologies and to open up new market opportunities. Foresight is integral to that strategy. The Foresight Business and the Regions Team are working with RDAs (many of whom have innovation strategies aimed at SMEs), the DTI's Small Business Service, Trade Associations and other intermediaries to encourage greater participation by SMEs. Tools and training specifically geared towards the needs of SMEs are also being developed. Foresight Panels themselves are also making specific efforts to involve SMEs, using for example Task Forces and Regional events focused specifically on the needs of smaller firms and involving the relevant Business Links , RDAs and Trade Associations. Other examples of Foresight activities aimed specifically at SMEs include:

- the SMART Foresight Awards, established in 1998 to recognise small companies who have shown exceptional vision in developing and applying new technologies and opening new market opportunities for their products and services.

- a series of best practice workshops for SMEs, to pilot techniques to enable them to apply Foresight strategies to their own businesses. Five have been held since April 2000 and two more are planned. Of the 30 SMEs involved so far, 80% said that they found these workshops useful/very useful.

- the CBI Foresight guide for business, specially written for SMEs, was published in November 1999. This is complemented by a series of business case studies, including some which demonstrate the successful use of Foresight strategies by trade association members, many of whom are SMEs.

- targeting SMEs since March of this year through 18 selected trade press titles used to place free feature articles on Foresight, supported by a reply-paid card. Respondents to the card have been sent a letter and literature about Foresight signposting them to the consultations, and to their local Foresight networks where relevant.

The Government will continue to explore ways to make Foresight more accessible to SMEs throughout the UK by constant monitoring, evaluation and refinement of our strategy.

The Government also agrees with the comments made in the body of the Select Committee's Report that the aims for Foresight set out in the 1993 White Paper have not yet been fully realised in the crucial area of the flow through of Foresight information and ideas into Departmental decisions on R&D priorities. Government is one of the main Foresight partners, together with business, the science base and the voluntary sector, in identifying key issues and priorities and ideas for action. The 1995 Foresight Panel reports and the overarching Foresight Steering Group report produced detailed priorities and recommendations. These reports and later updates have been widely distributed and promulgated, including within Government. Work continues through Panels' own Departmental contacts, the Foresight Officials' Group and the Ministerial Science Group to facilitate Departmental involvement in Foresight.

Examples of this in action include:

- the Foresight Crime Prevention Panel and the Home Office are working closely together to ensure that Foresight findings are taken up in planning long-term science and technology policies under the Government's Crime Reduction Programme.

- the Foresight Defence and Aerospace Panel initiated in 1997 the development of an industrial strategy for defence and aerospace technologies to map onto the Ministry of Defence's own Technology strategy, establishing a unique national consensus – the National Defence Industry Technology Strategy (NDITS). Supported by key Government departments and trade associations, this work has attracted responses from businesses representing over 90% of the sector's turnover.

The Government recognises however that there is potential for more to be achieved in this area.

(h) This issue was addressed in our recent Report on Engineering and Physical Sciences Based Innovation, in which we concluded: "The Government must recognise the need to increase the quality and levels of competence of SET graduates. The onus must then be on industry to seek ways of attracting the highest quality UK graduates in sufficient numbers into industrial careers". We reaffirm that conclusion (paragraph 55).

The Government has previously responded to this recommendation in the context of the Report on Engineering and Physical Sciences Based Innovation.

(i) The Government must continue to invest in the science base, and must build on that investment, if companies are to continue to conduct their R&D operations in the UK or, indeed, are to be attracted here from elsewhere. This is essential to the competitiveness of UK industry (paragraph 57).

(j) We would urge the Government to ensure that decisions on SET expenditure in the forthcoming CSR are informed and influenced by the need to create the conditions in which industry is more likely to increase its investment in R&D than to further reduce it from its already worrying level. We also recommend that the OST should commission research into the correlation between levels of publicly funded SET and expenditure on R&D by industry with the aim of establishing whether a causal link exists (paragraph 58).

The Government agrees that decisions on SET expenditure in the current Spending Review should be informed and influenced by many factors, including the need to create the right conditions for industry to invest in R&D. Government has already made much progress in this area, for example through the introduction of an R&D tax credit for SMEs, further development of the UK venture capital industry and reviews on the reform of insolvency and bankruptcy law. The forthcoming Science and Innovation White Paper will set the framework for a continuing programme of action.

A large part of Government expenditure on R&D is in support of policy development, to fill gaps in existing knowledge or to support areas of market failure and it is difficult to see that these would bear a positive correlation to expenditure on R&D by industry. There may be insufficient data to establish whether or not there is a causal link between levels of publicly funded SET and expenditure on R&D by industry. The balance between the two may also depend to a great extent on different countries' arrangements and past history, on the balance of funding between public and private sources for the support of research, and their overall portfolios. The type of analysis proposed by the Committee may therefore be meaningful only on a sector by sector basis. The Government will, however, consider further what research might usefully be undertaken in this area.

(k) "The Government's tax credit for R&D spending by small and medium-sized companies is directed to encourage more spending on development among those companies. However, if Britain is to remedy its declining capacity for science-based innovation, large companies will play the major part. There is, therefore, a strong case for extending tax credits to them too. Market research and the provision of demonstrators of the final product are recognised as critical to innovative success. It would substantially reduce industry's risks and encourage innovation if the costs of market research, demonstrators and product launch were included in such an R&D tax credit." (Paragraph 59).

The Government does not believe that it would be appropriate to extend this type of volume tax credit for SMEs to large companies. The introduction of the R&D tax credit has followed an extensive period of consultation, commencing with a consultation on innovation in early 1998 and the publication of two subsequent discussion documents in early 1999 on the definition of R&D and the appeals process and the proposed R&D tax credit. Following these consultations it was finally concluded by the Government that a volume based R&D tax credit for small and medium sized companies (SMEs) would be most cost effective and would focus the benefit on those companies most likely to grow and increase their R&D, but which face the greater barriers to R&D from risk and access to funding. Targeting assistance to corporate SMEs was considered the most cost-effective approach. To provide all firms with a volume tax credit based on a firm's total R&D expenditure would be very expensive, involve considerable dead-weight and would not offer good value for money.

Although larger companies are not eligible for the R&D tax credit they do have full use of Research and Development Allowances (RDA). RDA provides for 100 percent expensing of all capital expenditure on R&D. Proposed Guidelines on R&D published by the Secretary of State for Trade and Industry will also be of help to larger firms and should positively affect their behaviour towards R&D. The Guidelines will clarify the scope of activities for which they are able to obtain R&D tax relief. Even so, it should be noted now that the Government does not consider market research and product launch costs to be eligible Research & Development costs for tax purposes.

(l) We recommend that this opportunity should be taken to issue a White Paper on science which takes the ideals and principles of its 1993 predecessor and translates them into an effective plan of action. We further recommend that it should take account of the following conclusions to which we have already alluded.

The Government is currently working on a Science and Innovation White Paper. This will focus particularly on how to:

- maintain and enhance our excellence in science;
- expand opportunities for innovation by enabling and incentivising our scientists, engineers and business people to take advantage of science and technology to create wealth and secure improvements in our quality of life; and
- improve public confidence in science.

The Committee's report raises specific points in the context of a White Paper, and the Government response to each of these is set out below.

- ***the OST should remain located within the DTI;***
- ***there is no case for creating a Ministry of Science;***
- ***there should be a Minister for Science of Cabinet rank;***

The Government agrees with the Select Committee that there is no case for a separate Ministry of Science, as might be expected if there were to be a Minister for Science of Cabinet rank. The Secretary of State for the Department of Trade and Industry is responsible for OST and argues the case for science in Cabinet. Lord Sainsbury has day-to-day responsibility as Minister for

Science, and the Prime Minister's Chief Scientific Adviser ensures independent advice at the top level, including attendance at relevant Cabinet Committees.

- ***the co-ordination rôle of the OST and the CSA should be enhanced, with a more explicit remit to intervene, where necessary, with departments;***

- ***the CSA may require additional support to carry out his transdepartmental co-ordination rôle effectively;***

The CSA, supported by the OST, has a wide range of responsibilities including the provision of advice to the Prime Minister, to Ministers collectively and to individual Ministers and their departments on the co-ordination of activity on strategic issues, and in relation to funding, balance and direction of SET activity. He has a challenge function to intervene where he believes it is necessary to do so. He attends meetings of the Ministerial Science Group, advises the Cabinet Committee responsible for Public Expenditure on SET funding and is deputy Chairman of CST. In discharging these responsibilities, the CSA meets with Secretaries of State and other Permanent Secretaries. In addition, the CSA has a regular dialogue with departmental Chief Scientists and equivalents, both through CSAC and informally. OST has a general and open-ended responsibility to support the CSA in all these activities. OST officials maintain regular contact with their counterparts in other departments. The Government believes that the current arrangements for challenge and coordination on science issues work well. However, Ministers having listened to the view of the Chief Scientific Adviser, will also have to weigh their priorities, and will sometimes reach decisions which will not fully accord with the preferences of the Select Committee.

- ***the rôle of the Ministerial Science Group should be clarified and expanded to oversee the OST in its co-ordination rôle and to act as a forum for resolving disagreements;***

The Ministerial Science Group is an informal Ministerial Committee, chaired by Lord Sainsbury, the Minister for Science. The Committee's role is to promote a coherent and co-ordinated approach to SET policy-making across Government. Its membership comprises Ministers with an interest in science and includes Ministers from the devolved administrations of Scotland, Wales and Northern Ireland.

MSG already oversees a wide range of OST responsibilities including preparation of the Forward Look, implementation of the Guidelines on the use of scientific advice in policy-making and preparation of the Science and Innovation White Paper. In addition, the Group also takes a particular interest in Foresight.

- ***the rôle and powers of departmental Chief Scientists need to be clarified and increased, with an automatic right of access to the Government's Chief Scientific Adviser;***

In taking forward the recommendations from the Nicholson report, the Government will ensure that each department identifies a senior official in each department who will be accountable for the development and delivery of the science and innovation strategy, and for the levels of SET expertise within the department.

Departmental Chief Scientists can speak to the CSA at any time they wish to do so. The CSA maintains a regular dialogue with departmental Chief Scientists, and equivalents, through CSAC. These meetings take place regularly, both formally and informally and the relevant officials across Government also keep each other informed about current work and issues.

- ***departmental arrangements for decision-making on R&D priorities should be reviewed in order to establish whether more general lessons can be drawn from the different examples of MAFF and the DETR;***

This issue was considered by the Council for Science and Technology in the Nicholson report. They recommended that all departments should take a strategic approach to SET, and that all departments should have the capacity to take a central overview and to challenge plans for the use of science and technology, and particularly for research, taken by those responsible for delivering policies and services. Beyond that, they do not necessarily imply central decision-making within departments. In their report CST recognise both the advantages and disadvantages of the different approaches to the management of S&T. They said "we would hope that, by thinking more strategically, departments could develop an approach which gets the best of both worlds, whilst organising research and budgeting in a way that suits them best." The Government supports this assessment, and believes that departments will find it necessary to look at this issue as part of the process of drawing up their science and innovation strategies.

- ***the use of short-term contracts for research should be reviewed to determine whether any benefits in terms of cost-effectiveness are outweighed by the potential damage to the science base;***

The Government believes that the key purpose of departmental R&D expenditure is to ensure that decisions and policies are based on relevant scientific advice. Government departments use a variety of funding mechanisms to procure the necessary scientific research from public sector research institutes, universities and the private sector. These include competitive tendering of fixed-term contracts as well as other arrangements such as programme grants. The duration of these arrangements is in line with more general practice in research funding as grants, fellowships and contracts for one to five years are commonly offered by a range of other funding organisations including the research councils and research charities. Longer-term agreements are less common.

In order to maintain a customer's ability to switch the direction of research programmes in response to developments in both policy need and scientific understanding, all research agreements need to have break points. There is a balance to be struck in the length of individual contracts between providing an incentive to deliver relevant results rapidly, and the stability, which allows the development and maintenance of a particular expertise. Research customers should have the responsibility for deciding the optimal duration for any single contract.

The Government believes that departments have a responsibility to ensure that they are using the most appropriate mix of funding regimes to achieve their goals. Competitive tendering procedures, which avoid favouring one supplier over another, should be the normal mechanism for placing work unless there are significant considerations which justify alternative action. Such considerations may include the maintenance of a long-term strategic capability for which no competitive market is achievable. As part of the development of their science and innovation strategies, funding bodies, including customer departments, will determine which core capabilities they need public sector laboratories (including those in the science base) to deliver. They will then need to ensure their research funding or procurement policies properly protect and deliver these capabilities. These policies must provide security for strategic requirements, as well as using competitive tendering to give institutions the incentive to perform excellent research and provide good value for money.

- ***the Government must recognise the need to increase the quality and level of competence of SET graduates;***

Please see the response to recommendation (h) which, in turn, refers to the Government response to the Committee's Report on Engineering and Physical Sciences Based Innovation.

- ***the long-term decline in funding for departmental SET must be halted and reversed in the forthcoming Comprehensive Spending Review;***

Please see the response to recommendations (c) and (d).

- ***within its own CSR settlement MAFF should at least restore R&D funding to the level prior to the 1998 CSR and, if possible, implement the recommendation of its own working group for an £8 million annual increase in spending (paragraph 134).***

As the Committee are aware, the MAFF CSR settlement necessitated a series of cuts across its programmes, to which R&D was asked to contribute. The Minister of Agriculture, Fisheries and Food explained in his letter of 2 March that MAFF is taking a number of steps to strengthen its R&D programme and associated commissioning arrangements. As the letter notes, bids for additional funds for new R&D programmes have been made in the current Spending Review. These would enable MAFF to rebuild its "horizon scanning" capabilities and for other high priority research which, if successful, would exceed the sums mentioned by the Working Group. Since that statement was provided, MAFF has been successful in obtaining almost £30m of new funding from the Treasury for the next two years to expand research and surveillance programmes into scrapie, and associated capital investments.

The Minister also provided details of several other important initiatives, as follows:

MAFF will soon be consulting on and publishing a new Research Strategy to cover the period 2001-2005. This will allow all its stakeholders to comment on and influence future research priorities;

- work is underway to establish a new MAFF Science Committee, whose remit will include overseeing all the Department's scientific monitoring and surveillance activities as well as R&D. In order to increase transparency about what it does, and to raise the profile of MAFF-funded science, the new Committee will include a number of external appointees among its membership and will publish the minutes of its meetings as well as regular reports;

- greater effort is being made to publish regularly MAFF's research requirements, to peer review project proposals, and to disseminate MAFF R&D results and policies, making full use of the internet and other electronic communications;

- MAFF is expanding its programmes of research funded through the LINK process. Annual expenditure is expected to be over £7m for this year; and

- MAFF has established a rolling programme of *ex post* evaluations, conducted by independent consultants, to report on the success and value for money achieved from their research.

The Government believes that these activities clearly demonstrate MAFF's determination to expand and improve its underpinning programme of research.

In its report, the Committee also makes a number of general criticisms of the Ministry of Agriculture, Fisheries and Food (MAFF), particularly relating to reductions in R&D funding and MAFF's apparent weaknesses in negotiations with Treasury (paras 113-121). The Minister of Agriculture, Fisheries and Food has already commented on some other points emerging in the hearing and now reflected in the Committee's report. One such point concerns funding levels for R&D. The Minister noted in his letter of 2 March 2000 to the Committee that MAFF had to make unwelcome cutbacks in a significant number of areas, following the 1998 Comprehensive Spending Review. However, he pointed out that all priority research areas were fully protected, or enhanced where necessary (particularly the areas of TSEs and bovine TB). MAFF-funded research is making an important contribution to ensure the protection of public health, enhancement of the environment and more sustainable and efficient agriculture, food and fishing industries.

The Committee also commented on the relationship between the MAFF Chief Scientist, Permanent Secretary and the Government's Chief Scientific Adviser (CSA) (paragraphs 98,99, 113-121 and 133). The Minister of Agriculture, Fisheries and Food explained in his letter how the reporting arrangements operated. MAFF's reporting structures on the scientific side are similar to those found in many other departments. Such types of arrangements have not so far been considered a source of concern, nor is it clear that they should be. MAFF is a science-based department and is active in a substantial range of interdepartmental and international activities on science and science policy matters. The MAFF Chief Scientist and his staff regularly meet to advise on and discuss science and science policy developments with all relevant people in the department. There is regular dialogue with the CSA and officials from the Official of Science and Technology (OST) and all other Government departments, including the now-devolved administrations. The Permanent Secretary discusses matters with the CSA. Less formal exchanges can and do take place very regularly between people at all levels of the hierarchy, often outside the context of any formal institutional machinery for dialogue. In the Government's view there is no evidence that either the reporting arrangements within MAFF, or the way in which it organises dialogue with other departments or agencies, are inhibiting the necessary flow of information about its activities.

PROCEEDINGS OF THE COMMITTEE RELATING TO THE REPORT

WEDNESDAY 26TH JULY 2000

Members present:

Dr Michael Clark, in the chair

Sir Paddy Ashdown
Dr Brian Iddon
Dr Ian Gibson
Dr Lynne Jones

The Committee deliberated.

Draft Report (The Government's Expenditure on Research and Development: The Forward Look — The Government's Reply), proposed by the Chairman, brought up and read the first time.

Ordered, That the draft Report be read a second time, paragraph by paragraph.

Paragraphs 1 to 10 read and agreed to.

Resolved, That the Report be the Seventh Report of the Committee to the House.

Ordered, That the Chairman do make the Report to the House.

Ordered, That the Government's Reply to the Fifth Report from the Committee [The Government's Expenditure on Research and Development: The Forward Look] be appended to the Report.

[Adjourned to a date and time to be fixed by the Chairman.

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First Report: The Implications of the Dearing Report for the Structure and Funding of University Research (HC 303)

Second Report: The Year 2000—Computer Compliance (HC 342)

Third Report: Glaxo Wellcome and SmithKline Beecham: The Merger Proposals (HC 627)

Fourth Report: The Cloning of Animals from Adult Cells (HC 1039)

Fifth Report: British Biotech (HC 888)

Sixth Report: Science and the Comprehensive Spending Review (HC 1040)

First Special Report: The Government's Response to the Committee's Fourth Report, Session 1996–97, The Research Council System: Issues for the Future (HC 302)

Second Special Report: The Government's Response to the Committee's Third Report, Session 1996–97, The Natural Environment Research Council and Research into Climate Change (HC 306)

Third Special Report: The Government's Response to the Committee's First Report, Session 1997–98, The Implications of the Dearing Report for the Structure and Funding of University Research (HC 799)

Fourth Special Report: The Government's Response to the Committee's Fifth Report, Session 1997–98, British Biotech (HC 1185)

Session 1998–99

First Report: The Scientific Advisory System: Genetically Modified Foods (HC 286)

Second Report: The National Endowment for Science, Technology and the Arts (HC 472)

Third Report: The Scientific Advisory System: Mobile Phones and Health (HC 489)

Fourth Report: The Regulation of the Biotechnology Industry (HC 535)

First Special Report: The Government's Response to the Committee's Sixth Report, Session 1997–98, Science and the Comprehensive Spending Review (HC 234)

Second Special Report: The Government's Response to the Committee's Second Report, The National Endowment for Science, Technology and the Arts (HC 822)

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First Report: The Year 2000—Computer Compliance: Follow-Up (HC 37)

Second Report: Engineering and Physical Sciences Based Innovation (HC 195-I)

Third Report: Scientific Advisory System: Diabetes and Driving Licences (HC 206-I)

Fourth Report: Glaxo Wellcome and SmithKline Beecham (HC 207-I)

Fifth Report: Government Expenditure on Research and Development: The Forward Look (HC 196-I)

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First Special Report: Government Response to the Committee's Second Report, Engineering and Physical Sciences Based Innovation (HC 451)

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